

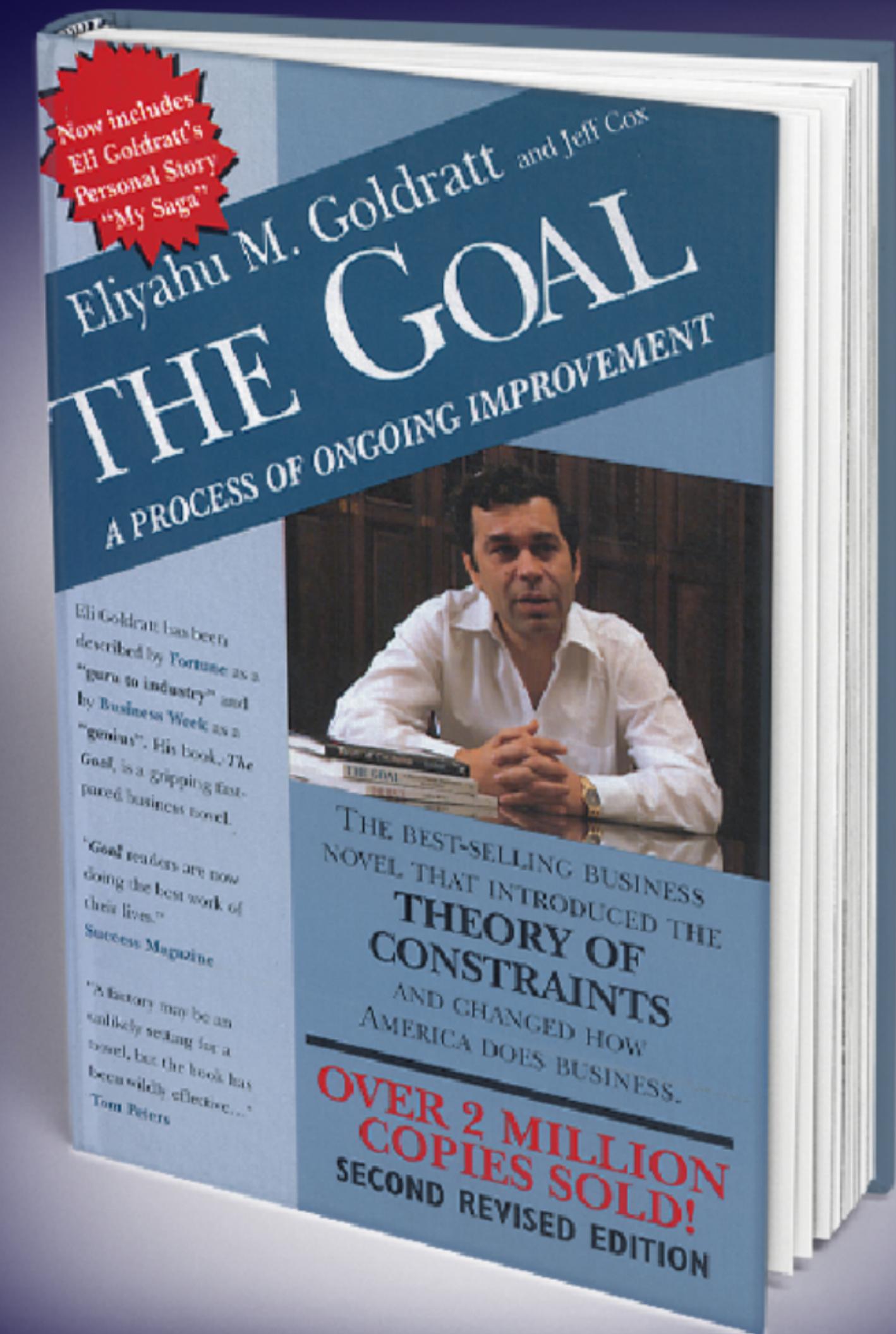
An Intro to Theory of Constraints

September 2022

Eliyahu Goldratt

"The Goal"

A process of ongoing improvement



Before we start, a quick exercise to get you thinking



In Three Sentences ...

1

Simplify your problem to the point where you understand the true goal.

2

With your goal in mind, identify the constraints within your system (i.e bottlenecks).

3

Focus on improving the output of that constraint without worrying about the productivity of all related processes.

Why

Any improvement made that isn't at the bottleneck, will not bring improvement to the whole.

A Process of Ongoing Improvement

When you improve a bottleneck,
the bottleneck (likely) moves to
another part of the process.

wat does
this mean?





Here is how I think about it

- 1** What's our goal.
 - 2** Identify the steps needed to fulfil that goal.
 - 3** Locate the bottleneck.
 - 4** Improve the bottleneck.
 - 5** Repeat - GOTO 3.
- 

How do you make a chain strong ?

use
stronger
metal

more
links

Welding
technique

good
maintenece



A chain is only as strong as its weakest link



SNAILPACE

COFFEE



1

What is the Goal?

REVEAL

1

What is the Goal?

To make money, selling coffee
(+plus other drinks & food)



'Going to the Gemba'

Go to the place of work.

“Go see, ask why, show respect”

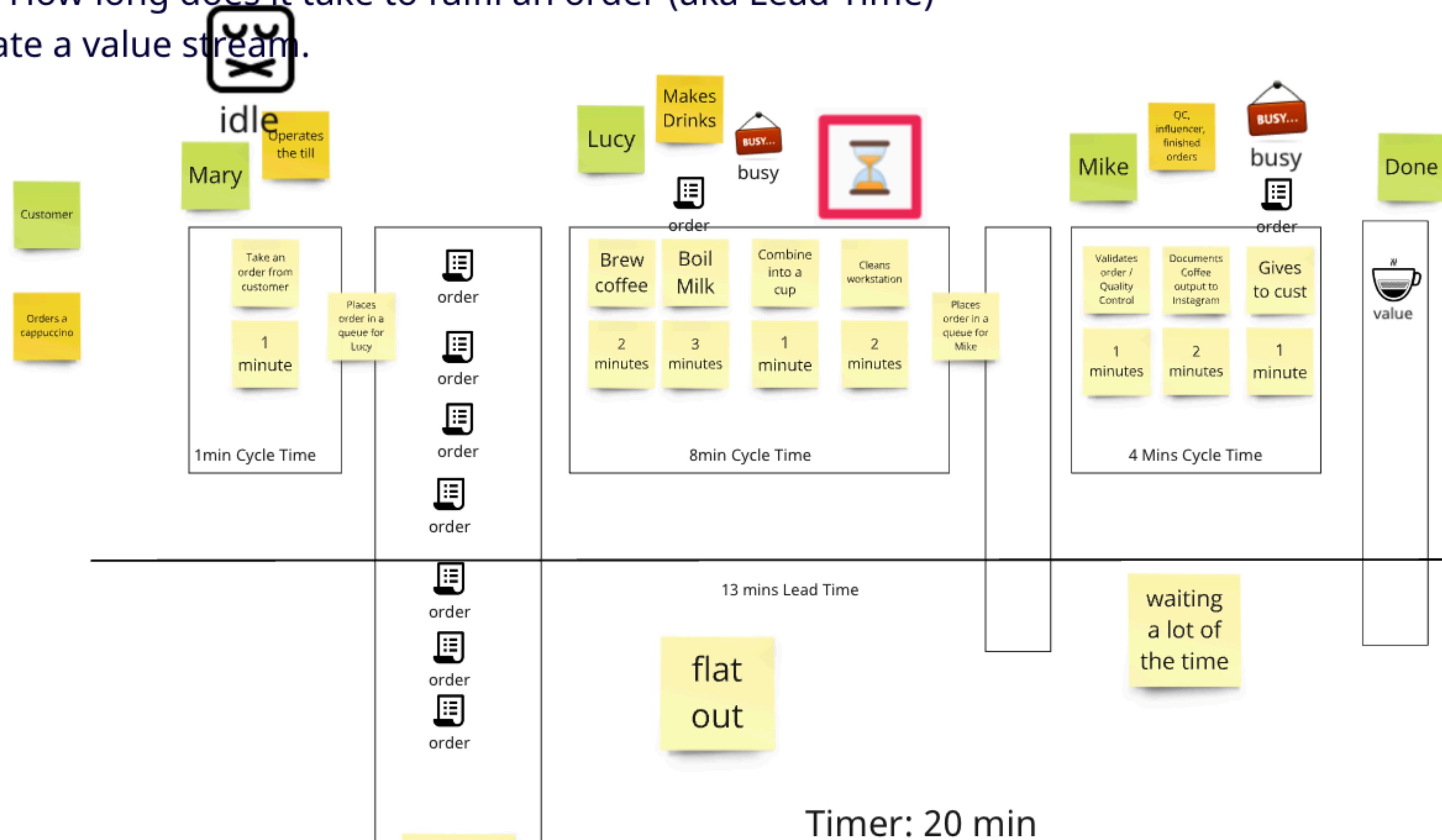
Tool: Value Stream Mapping



Identify the steps - Recipe:

1. What steps are required?
2. In what order do they happen?
3. How long does each step take? (aka Cycle Time)
4. How long does it take to fulfil an order (aka Lead Time)

Create a value stream.



3

Locate the bottleneck

Recipe:

- Look for build up of work before a step/process?
- Which step takes the longest time?.
- Are downstream steps starved of work/idle?

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Activity

It's peak, starting when the first order from a crowd of 10 arrived from a meeting. You observed an 20 minute window.

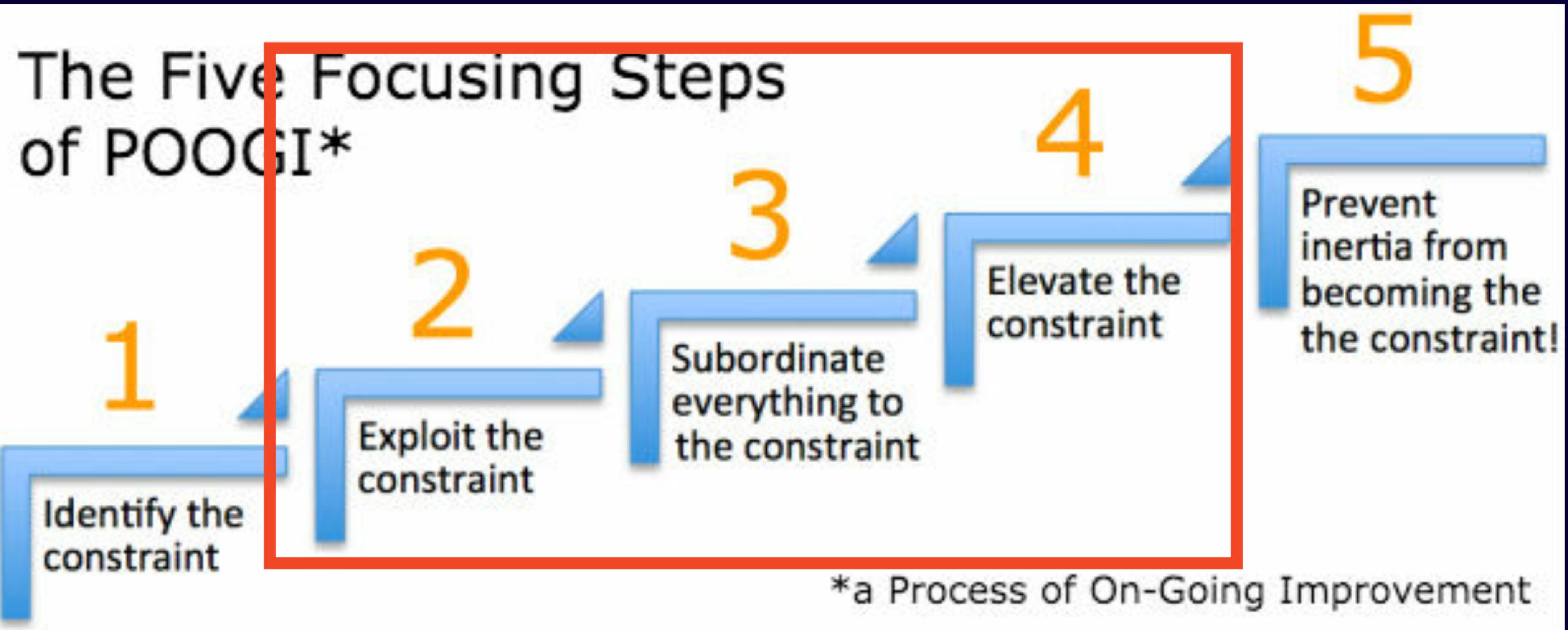
Mary has taken 10 orders, what does it look like?

1. What has Mary done? What is she doing?
2. What does the queue to Lucy look like?
3. What has Lucy done, what is she doing?
4. What does the queue to Mike look like?
5. What has Mike done, what is he doing?

Where is the Bottleneck?

4

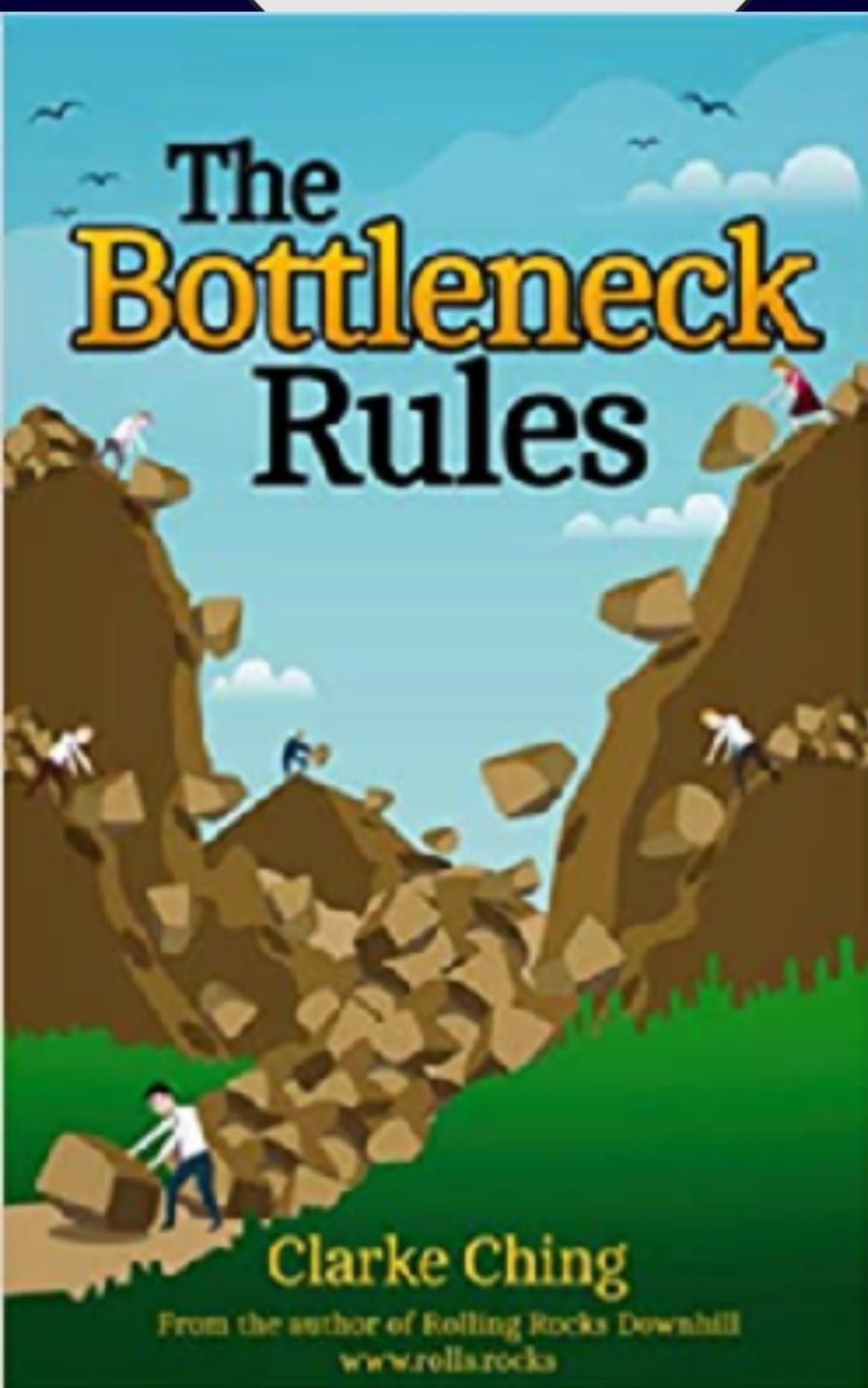
Improve the bottleneck (from the book)



what
does
this
mean?



4



Remember - FOCCCUS

Find

- Optimise - squeeze more out / aligned to the goal?
- Coordinate
- Collaborate
- Curate
- Upgrade

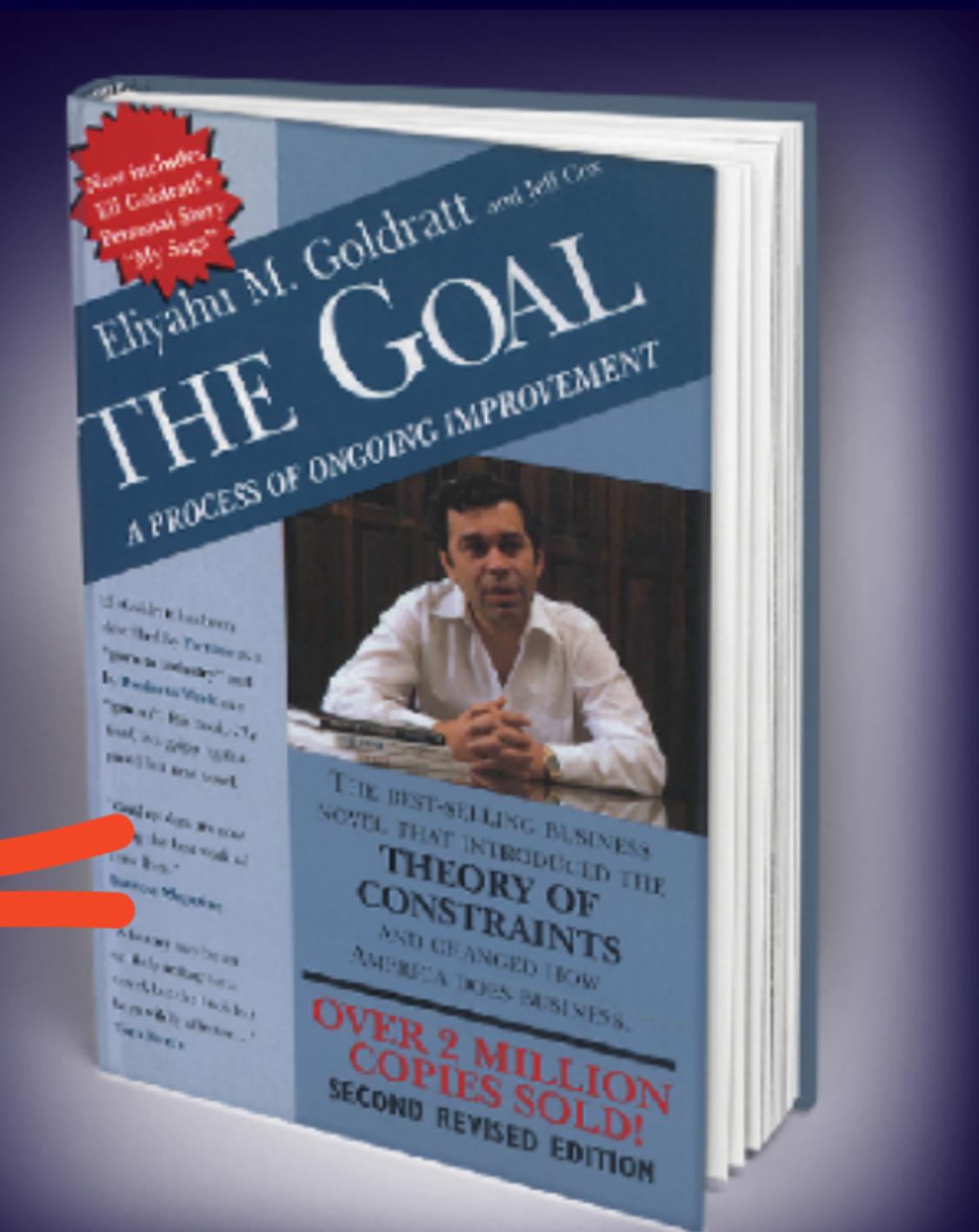
Start Again

There is a lot of power in really thinking through how everyone else can support - finding ways to open up the bottleneck is the only way to generate more in the entire system.

Stop...

Eliyahu Goldratt "The Goal"

A process of ongoing improvement



5

Repeat

Recipe:

- Re-observe the process with your one change
- Time each step - get a stopwatch.
- Map it out
- Identify the bottleneck
- Do 1x Improvements
- go again, and again, and again ...

Remember that exercise, how did we do?

**Can you think of when ToC
would be useful in your daily work?**

Here is your recipe for managing bottlenecks.

1 What is our goal?

2 Identify the steps that fulfil the goal



Think of the chain metaphor, create a 'value stream'



"Go to the gemba", observe, time, ask questions, show respect.

3 Locate the bottleneck



1. Look for build up of work before a step/process? (Queues)
2. Which step takes the longest time?
3. Are downstream steps starved of work/idle?

4 Improve the bottleneck



1. Think **FOCCUS**, optimise to the goal, coordinate, collaborate, curate, upgrade.



Don't make too many changes - 1x improvements.

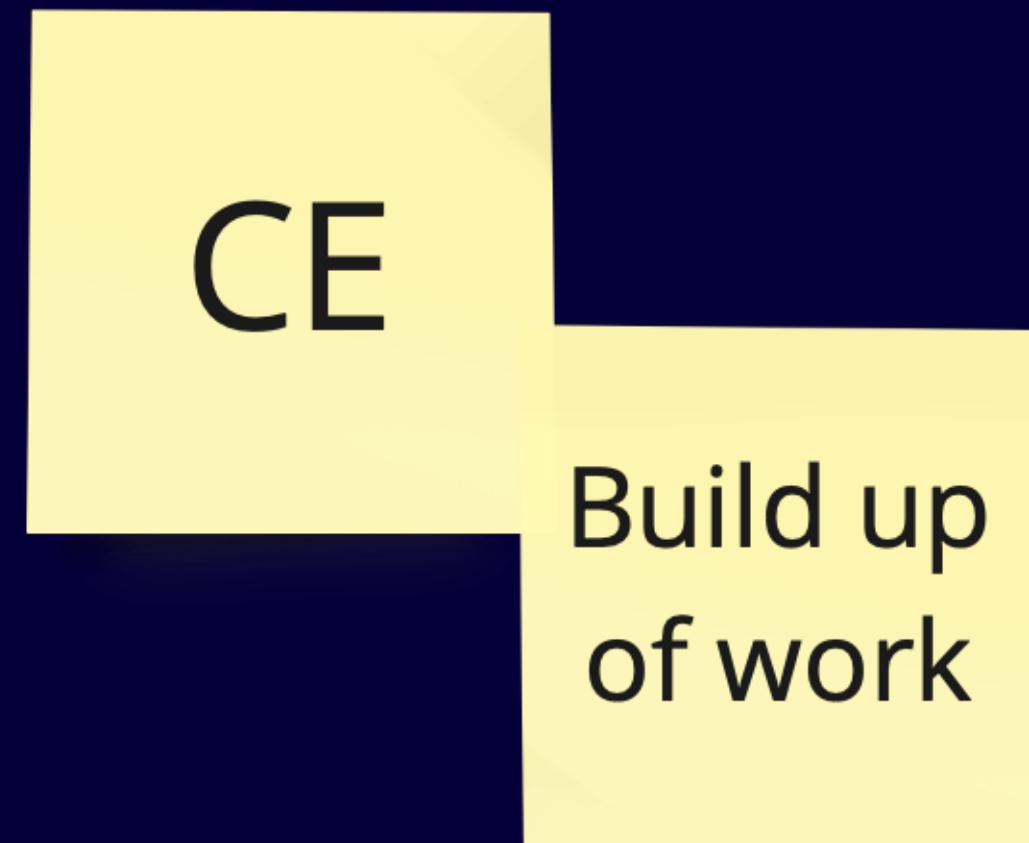
5 Repeat



Theory of Constraints is a process of ongoing improvement. --- GOTO 3.



Observe/validate your change, the (new) bottleneck will likely move somewhere else.





END

Congrats

You are now on your journey.

In every day life, try and find the bottlenecks
hidden in plain sight.

Next steps

Read:

- The Bottleneck Rules - Clarke Ching
- Rolling Rocks Downhill - Clarke Ching
- Phoenix Project - Gene Kim
- The Goal - Eli Goldratt
- It's Not Luck (further reading)

IT'S TIME FOR IS THERE A BOTTLENECK YES / NO

Yes

No



Yes

No



Yes

No



Yes

No



Yes

No



Yes

No



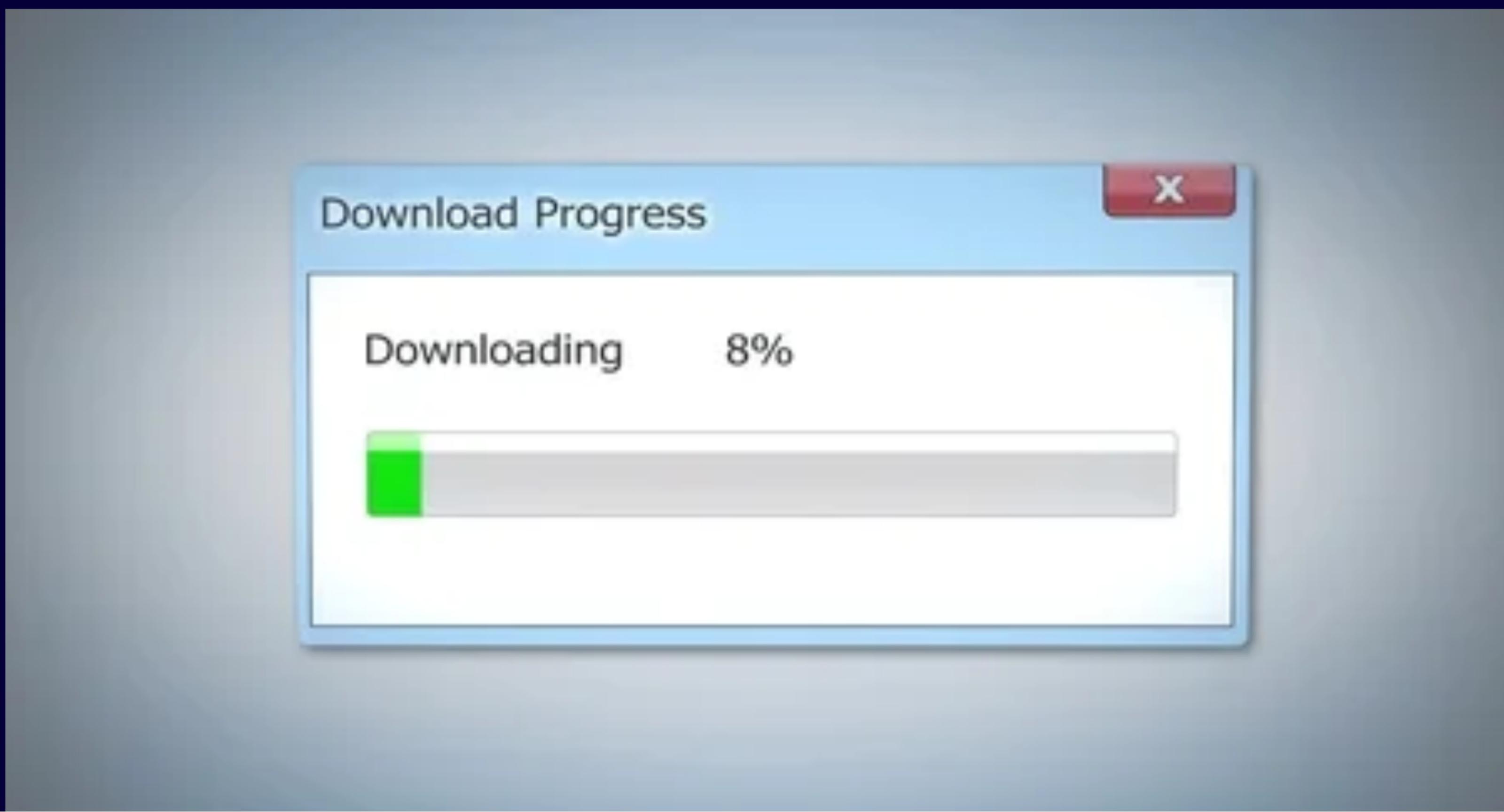
Yes

No



Yes

No



Yes

No

Sprint Backlog	Design		Development		Testing		Done
	Doing	Ready	Doing	Ready	Doing	Ready	